

IN THE CLAIMS

1. (Currently Amended) A method Method of optimizing optimising the a size of coded data blocks intended to be subjected to an iterative decoding process, characterised in that, wherein a maximum acceptable error rate at the output of the iterative decoding being process is fixed in advance, the method seeks comprising:

determining a submultiple block size amongst among a plurality of integer block sizes $\{N/k\}$, which are submultiples of the normal an integer block size N by an integer factor (k) greater than or equal to 1, wherein k is a factor of N; and

determining a maximum number of iterations among a plurality of integers giving the corresponding to a maximum number of iterations $\bar{n}_{\text{iterations}}^{(k)}$ which can be effected to be applied by the said iterative decoding process on a coded data block, a submultiple size and a maximum number of iterations, based on such that they are compatible with the said maximum error rate, and such that a mean number of iterations $\bar{n}_{\text{iterations}}^{(k)}$ which would be effected that will be applied by the iterative decoding process on a the submultiple sized block size is as low as possible minimized.

2. (Currently Amended) The optimization Optimisation method according to Claim 1, characterised in that wherein, for a size which is a multiple by a given factor k and a given maximum number of iterations $\bar{n}_{\text{iterations}}^{(k)}$, the said mean number of iterations $\bar{n}_{\text{iterations}}^{(k)}$ is determined as a function of the signal to noise a signal-to-noise ratio as the mean value of the number of iterations which would that will be effected applied by the iterative decoding process for each block in a succession of blocks of said submultiple size, the iterations being stopped (1) if the block of said submultiple size satisfies a predetermined reliability criterion, or (2) if the number of iterations for this the block attains the said given maximum number of iterations.

3. (Currently Amended) Optimisation The optimization method according to Claim 1-~~or 2~~, characterised in that said wherein mean numbers of iterations for different submultiple sizes, different maximum numbers of iterations, and different signal-to-noise ratios are stored in a table.

4. (Currently Amended) Optimisation The optimization method according to Claim 3, characterised in that wherein the table is updated as based on results of the iterative decoding continues process.

5. (Currently Amended) Optimisation The optimization method according to Claim 3-~~or 4~~, characterised in that wherein the mean numbers of iterations are obtained by interpolation from values available in the table.

6. (Currently Amended) Optimisation The optimization method according to ~~one of the preceding claims~~ claim 1, characterised in that the search is limited to the wherein the step of determining a submultiple block size comprises:

determining the integer factor k among integers which that have a value higher than a predetermined value (k_{min}).

7. (Currently Amended) Optimisation The optimization method according to ~~one of the preceding claims~~, characterised in that, prior to the search, it determines to claim 1, wherein the step of determining the maximum number of iterations comprises:

determining the maximum number of iterations ($n_{iterations}^{(k)}$) for a block of normal size, compatible with a predetermined maximum decoding time, and in that the wherein a the

search ~~amongst~~ among said plurality of submultiple block sizes (N/k) and said plurality of integers is limited to ~~the~~ values such that the mean number of iterations $(\bar{n}_{\text{iterations}}^{(k)})$ which ~~would that will be effected~~ applied by the iterative decoding process on a block of said submultiple size is less than said maximum number of iterations $(\bar{n}_{\text{iterations}}^{(k)})$.

8. (Currently Amended) Method A method for the iterative decoding of coded data blocks, the coded data blocks having an initial size, ~~characterised in that~~ the method comprising:

determining an optimum block size and a maximum number of iterations associated with ~~this~~ the optimum block size ~~are determined~~ by means of the optimisation method of claim 1 according to one of the preceding claim and in that;

partitioning the coded data of a block of initial size ~~having been coded~~ as a sequence of sub-blocks of optimum size $[[,]]$;

decoding the sub-blocks ~~are decoded~~, one by one, by a succession of iterations of the iterative decoding process, the iterations being stopped for a one of the sequence of sub-blocks if (1) a predetermined reliability criterion is satisfied, or (2) if the number of iterations attains the said maximum number of iterations associated with the said optimum block size.

9. (Currently Amended) Method A method for the an iterative decoding of coded data blocks, the coded data blocks having an initial size, ~~characterised in that~~ comprising:

determining an optimum block size and a maximum number of iterations associated with ~~this~~ the optimum block size ~~are determined~~ by means of the optimisation method ~~according to one of the preceding claims of claim 1, and in that;~~

partitioning the coded data of a block of initial size ~~having been coded~~ as a sequence of sub-blocks of optimum size~~;~~

decoding the sub-blocks ~~are decoded~~ by successively effecting applying, on each sub-block, an iteration of the iterative decoding process, ~~an~~ the iteration not being ~~effected~~ applied for a sub-block (1) if a predetermined reliability criterion is satisfied, or (2) if the number of iterations reaches the maximum number of iterations associated with the said optimum block size.

10. (Currently Amended) Devicee A device for the ~~an~~ iterative decoding of blocks of data coded by a turbocoder, ~~characterised in that it has comprising:~~

~~means for implementing the optimisation method according to one of Claims 1 to 7 of claim 1, the said means sup lying an optimum block size and a maximum number of iterations per block of optimum size, the device also comprising; and~~

~~means for transmitting the optimum block size information to the turbocoder.~~

11. (Currently Amended) Coding/decoding A coding/decoding system comprising:
turbocoder adapted configured to code blocks of data; and
an iterative decoding device according to Claim 10 adapted configured to decode the blocks of data coded by the turbocoder, the latter iterative coding device further comprising
means for receiving the said optimum block size information and for modifying the size of at least one internal interleaver according to the said information received optimum block size.

12. (Currently Amended) Devicee A device for coding blocks of data, ~~characterised in that it has comprising:~~

~~means for implementing the optimisation method according to one of Claims 1 to 7 of Claim 1, the said means supplying an optimum block size, the device also comprising; and~~

means for adaptively modifying the size of the coded data blocks according to the said optimum block size.

13. (Currently Amended) Device A device for the turboequalisation of blocks of data coded by a coder and modulated, characterised in that it has comprising:

means for implementing the optimisation method according to one of Claims 1 to 7 of Claim 1, the said means supplying an optimum block size, the device also comprising; and means for transmitting the optimum block size information to the coder.